

1. (Currently amended): A low NO_x burner nozzle assembly comprising:
an elongated hollow burner tube providing a longitudinally extending conduit for
supplying a mixture of fuel and air to a combustion zone, said burner tube having an outer wall
surrounding said conduit, a longitudinally extending central axis, an inlet end and an outlet end a
pair of spaced ends;

a discharge nozzle located at one of the ends outlet end of the burner tube, said
discharge nozzle being in direct communication with said conduit and configured and arranged
for receiving at least a portion of said mixture of fuel and air from the conduit and directing the
same into said combustion zone;

an inlet for a mixture of fuel and air at the ~~other~~ inlet end of the burner tube;
an air passageway located outside the outer wall of the burner tube for supplying
air to said combustion zone; and

at least one port extending through said outer wall at a location between the
discharge nozzle and said inlet end of the conduit, said port communicating with
intercommunicating the conduit and the air passageway, whereby to facilitate the passage of a
portion of said mixture of fuel and air from the conduit and into said air passageway for
admixture with air flowing through the air passageway.

2. (Original): A nozzle assembly as set forth in claim 1, wherein said air
passageway is annular and surrounds said outer wall.

3. (Original): A nozzle assembly as set forth in claim 2, wherein said port has a
center axis which is essentially perpendicular to said central axis.

4. (Original): A nozzle assembly as set forth in claim 2, wherein said port has a
center axis which is at an angle relative to said central axis.

5. (Currently amended): A nozzle assembly as set forth in claim 2, comprising a plurality of said ports extending through said wall at respective locations between the discharge nozzle and said inlet.

6. (Original): A nozzle assembly as set forth in claim 5, wherein said ports are arranged in one or more rows which extend around said outer wall.

7. (Original): A nozzle assembly as set forth in claim 5, wherein each of said ports has a center axis which is essentially perpendicular to said central axis.

8. (Original): A nozzle assembly as set forth in claim 7, wherein said center axes are arranged in a common plane which is essentially perpendicular to said central axis.

9. (Original): A nozzle assembly as set forth in claim 1, wherein said location is closer to said discharge nozzle than it is to said inlet end.

10. (Original): A nozzle assembly as set forth in claim 8, wherein said common plane is positioned closer to said discharge nozzle than to said inlet end.

11. (Original): A nozzle assembly as set forth in claim 1, wherein said discharge nozzle includes a plurality of flow directing members which are arranged to define therebetween a plurality of passageways which extend in generally radial directions relative to said axis, and an end cap mounted on said members in a location to redirect at least a portion of the mixture flowing from the end of the conduit and cause the same to flow through said passageways in a generally radial direction.

12. (Original): A nozzle assembly as set forth in claim 11, wherein said members are arranged so that some of said passageways have a larger flow area than others of said passageways.

13. (Original): A nozzle assembly as set forth in claim 11, wherein said air passageway is annular and surrounds said outer wall.

14. (Currently amended): A nozzle assembly as set forth in claim 13, comprising a plurality of said ports extending through said outer wall, and wherein said ports are arranged in one or more rows which extend around said outer wall.

15. (Original): A low NO_x radiant wall burner comprising a burner tile having a central opening and a nozzle assembly as set forth in claim 1, the burner tube of said nozzle assembly being adapted and arranged so as to extend through said central opening.

16. (Currently amended): A burner ~~assembly~~ as set forth in claim 15, wherein the discharge nozzle of said nozzle assembly includes a plurality of flow directing members which are arranged to define therebetween a plurality of passageways which extend in generally radial directions relative to said axis, and an end cap mounted on said members in a location to redirect at least a portion of the mixture flowing from the end of the conduit and cause the same to flow through said passageways in a generally radial direction.

17. (Currently amended): A burner ~~assembly~~ as set forth in claim 16, wherein said members are arranged so that some of said passageways have a larger flow area than others of said passageways.

18. (Currently amended): A ~~nozzle assembly~~ burner as set forth in claim 16, wherein said air passageway is annular and surrounds said outer wall.

19. (Currently amended): A burner ~~assembly~~ as set forth in claim 18, comprising a plurality of said ports extending through said wall, and wherein said ports are arranged in one or more rows which extend around said outer wall.

20. (Currently amended): A burner assembly as set forth in claim 16, wherein the passageways are arranged such that the redirected mixture of fuel and air, when ignited, provides a generally laterally extending flame having an outer peripheral extremity at a location in said zone spaced radially from said axis.

21. (Currently amended): A method for operating a burner comprising:

causing providing a mixture of fuel and air and causing the same to flow toward a centrally located point adjacent a face of a burner tile;

causing providing a secondary stream of at least one of additional air and recirculated flue gas ~~to flow toward a location adjacent said face which is spaced laterally from said point~~; and

separating diverting a first portion of said mixture and intermixing the same with said secondary stream to thereby create an a fuel lean admixture, the relative proportions of said mixture and said secondary stream in said admixture being such that the latter is capable of flameless oxidation;

causing the remaining portion of said mixture to combust and flow radially outwardly from said point across the face of said tile while combusting;

causing said fuel lean admixture to flow toward a location adjacent the face of the tile and spaced laterally from said point, and oxidizing the fuel lean admixture flamelessly to thereby create relatively cool oxidation products before the same reaches said location.

22. (Currently amended): A method for operating a burner as set forth in claim 21, said method further comprising separating a second dividing said remaining portion of said mixture into a plurality of separate streams, and causing said separate streams to flow radially outwardly from said point across the face of said tile and causing said streams to combust to

form a flame which surrounds said point, ~~and flamelessly oxidizing said admixture at said face to create relatively cool oxidation products.~~

23. (Currently amended): A method as set forth in claim 21 22, comprising admixing said oxidation products with said combusting remaining portion of said mixture flame to thereby dilute and cool the latter same.

24. (Currently amended): A method as set forth in claim 21, wherein said secondary stream comprises additional air.

25. (Currently amended): A method as set forth in claim 21, wherein said secondary stream comprises recirculated flue gas.

26. (Currently amended): A method as set forth in claim 21, wherein said secondary stream comprises recirculated flue gas and additional air.